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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/742,497      | 12/20/2000  | Carl A. Reiser       | C-2389              | 8749             |

7590 09/10/2002

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EXAMINER

YUAN, DAH WEI D

| ART UNIT | PAPER NUMBER |
|----------|--------------|
| 1745     | 3            |

DATE MAILED: 09/10/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                        |                     |  |
|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 09/742,497             | REISER ET AL.       |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                              | Dah-Wei D. Yuan        | 1745                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### **Status**

- 1) Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) This action is **FINAL**.      2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### **Disposition of Claims**

- 4) Claim(s) 1-24 is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1,8-11 and 15 is/are rejected.
- 7) Claim(s) 2-7,12-14 and 16-24 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### **Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.
 

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.
 

If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

#### **Priority under 35 U.S.C. §§ 119 and 120**

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
  - a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

#### **Attachment(s)**

|  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>2</u> . | 6) <input type="checkbox"/> Other: _____                                    |

**PROCEDURE FOR SHUTTING DOWN A FUEL CELL SYSTEM USING AIR PURGE**

Examiner: Yuan      S.N. 09/742,497      Art Unit: 1745      September 5, 2002

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1,8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cipollini (US 6,379,827).

Cipollini teaches a fuel cell system in which anode flow fields are supplied with a hydrogen gas from a pressurized fuel source and cathode flow fields are supplied with ambient air via an air blower or a compressor. The fuel source is a fuel processing system, i.e., fresh hydrogen instead of recycled anode exhaust. During power plant shutdown, the controller closes the supply valve to stop the flow of fuel through the anode flow fields and deactivates air blower or compressor to stop the flow of air or oxygen through the cathode flow fields. In addition, valve (69 in Figure 1) can open to allow flow of air to extension line (62' in Figure 1). The controller activates blower to provide an air flow which is directed through extension line to fuel supply line and then into the fuel flow fields. See Column 6, Lines 15-39; Column 8, Lines 28-313; Column 10, Lines 18-29.

The disclosure of Singleton et al. differs from Applicant's claims in that Cipollini does not teach disconnecting the primary electricity using device from the external circuit during the

shutdown. However, it would have been obvious to one of ordinary skill to disconnect the device from the circuit because of safety concerns. With respect to claims 8-11, it is the position of the examiner that disclosure provides no evidence or criticality with regard to the relative time for purging the anode flow field with air in which dimension, geometry and complexity of the flow fields are not disclosed.

3. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cipollini (US 6,379,827) as applied to claims 1,8-11 above, and further in view of Condit et al. (US 6,432,566).

Cipollini discloses a shutdown procedure for a fuel cell system as described above in Paragraph 2. However, Cipollini does not disclose the use of a blower that can recalculate an anode flow field exhaust through the anode flow fields. Condit et al. teach a fuel cell system which has an anode recycle line, an anode valve and blower means secured to the line for selectively directing a portion of the anode exhaust stream from the anode exhaust passage to the fuel inlet passage. Similarly, an oxidant blower (34 in Figure 1) a cathode recycle line is used to selectively recycle a portion of the cathode exhaust stream leaving the cathode flow field back into the oxidant inlet. See Column 9, Line 55 to Column 10, Line 6. Therefore, the blower in the anode flow fields and the blower in the cathode flow fields are considered functionally equivalent blower means. Therefore, it would have been obvious to one of ordinary skill in the art to use the blower in the Condi reference to blow air into the anode flow field without

recalculating the anode exhaust because blower in anode exhaust line is considered to be functionally equivalent to the blower in the cathode exhaust line.

*Allowable Subject Matter*

4. Claims 2-7,12-14,16-24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 2-7,12-14,16-24 would be allowable because the prior art does not disclose or suggest the use of an auxiliary resistive load for a period of time after step (A) and before step (b) as stated in the claim.

*Conclusion*

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Donahue et al. teach the use of an auxiliary resistive load in regenerating the performance of a fuel cell system.

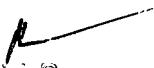
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dah-Wei D. Yuan whose telephone number is (703) 308-0766. The examiner can normally be reached on Monday-Friday (8:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan, can be reached on (703) 308-2383. The fax phone numbers for

the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Dah-Wei D. Yuan  
September 5, 2002

  
Patrick Ryan  
Supervisory Patent Examiner  
Technology Center 1700